

Appendix F: ACCESS tool kit diagnostics

Meridian IVR builds upon the Meridian ACCESS product by adding a higher layer of software to facilitate call flow development and application execution. Meridian ACCESS is a hardware and software option that provides to UNIX workstations access to many features of the Meridian Mail voice messaging system.

The Meridian ACCESS “system” includes the Meridian 1, Meridian Mail, and Meridian ACCESS.

After logging on to Meridian Mail and entering the tools password (or the RSC password) you are prompted to enter the administrator password. After entering the administrator password, the Tools menu appears.

For Meridian Mail systems with Release 8 or above, choose menu option <13>, “Other”, and the feature-dependent tools will be displayed. The items that appear on this menu will depend on the features that you have installed on your system. Select the ACCESS Link diagnostics option.

Verification of the ACCESS link is through the ACCESS Diagnostics menu item.

For more information about Meridian ACCESS, refer to the following manuals:

Meridian Mail System Administration Utilities (RSC) (NTP 555-7001-306)

Meridian IVR System Administration Guide (NTP 555-9001-300)

ACCESS tool kit diagnostics

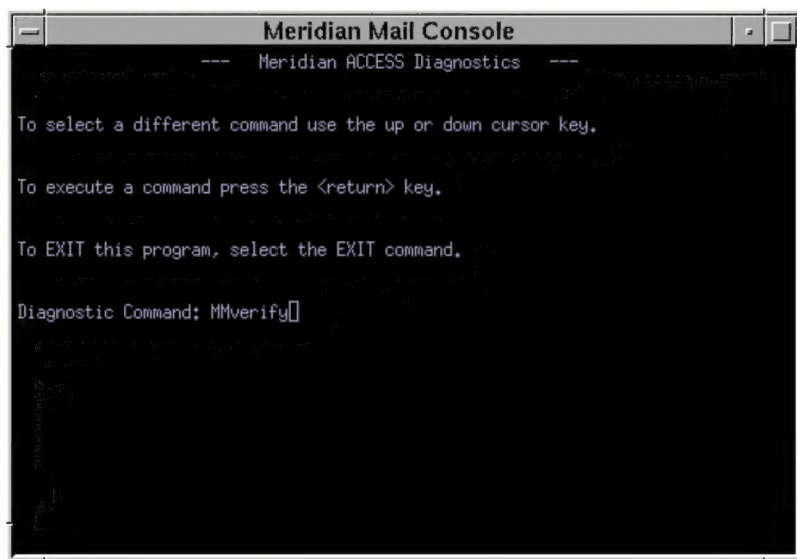
This utility can be used to diagnose and/or monitor system activity-related to Meridian ACCESS running on a UNIX processor.

The diagnostic tool includes a group of commands which allow you to verify

- whether an ACCESS link is operational
- link stability
- the ACCESS port number and link speed on Meridian Mail Release 8 and above
- the number of link outages that have occurred
- whether application traffic is present
- whether the Meridian ACCESS tasks are running
- whether the applications processor link handler is running

Figure F-1 shows the initial screen that is displayed when the diagnostic tool is loaded from the Tools menu. The last line on the screen displays the current command.

Figure F-1
Meridian ACCESS diagnostics screen



ACCESS components

There are three primary components on each side of the ACCESS link. They are briefly discussed in the following sections. If you require a more detailed description, refer to the "Overview" in the *Meridian 1 ACCESS Configuration Guide* (NTP 555-7001-315).

Meridian Mail tool kits

Tool kit (TK)

There is a TK for each voice port on the system. The TK is responsible for executing API commands received across the Meridian ACCESS link.

Tool kit Master (TKM)

TKM acts as a resource manager for tool kit tasks.

Tool kit Communications (TC)

The TC task is responsible for driving the Meridian ACCESS link. It implements a proprietary protocol that supports variable size packets, checksum error handling, virtual channels and retransmission on errors. Valid command packets received are passed on to the appropriate tool kit task.

Application processor components

ACCESS link handler

This task provides functionality equivalent to the TC for the applications processor side. The link handler is split into two tasks, one that receives data and one that handles the output.

ACCESS API library

This is the ACCESS object code library containing ACCESS API procedures that are linked in with the applications. Most procedures translate into commands that are put into a data packet and passed on to the link handler. The Meridian IVR core software has been compiled with the ACCESS API library.

Application

This is the “C” program written by either Nortel or a VAD using ACCESS API procedures to answer calls when they arrive. The application controls the Interactive Voice Response service being provided. The data communications module (dcm) process of Meridian IVR is an ACCESS application.

Procedure F-1

Running Meridian ACCESS diagnostics

- 1** Start at the Tools menu, Meridian ACCESS Diagnostics window activated.
- 2** Select the appropriate command by using the up or down cursor key (the current command is displayed on the last text line).
- 3** Press <Return> to execute the command.

See the following sections, “MMVERIFY” and/or “APVERIFY” for a description of the command you plan to execute.
- 4** When you have finished running diagnostics, select the EXIT command (by using the up or down cursor key until EXIT is displayed on the Diagnostic Command line). Press <Return> to return to the Tools menu.

Commands

Five commands, MMVERIFY, APVERIFY, SETLINK, LINKS, and OMRESE comprise the diagnostic tool on Meridian Mail.

Use a combination of APVERIFY (first) and MMVERIFY to determine link status.

MMVERIFY

This command performs the necessary checks and displays a report on the status of ACCESS software running on the Meridian Mail side of the link.

MMVERIFY reports the following items.

Link status

The report indicates whether the ACCESS link is operational.

TC status

This is an indication of whether the TC task is running. When the TC task is running, the link is either in operational mode or attempting to synchronize with the UNIX processor. If the link is operational, then the link handler on the UNIX processor is up and running.

TKM status

This is an indication of whether the TKM task is running.

Note: For the TC to be running, the TKM must be present.

Link speed and configuration

The link speed and data port settings are displayed.

Link OM information

Operational Measurement (OM) data for the TC is displayed (as shown in [Figure F-2](#)).

Link stability

There are several indicators in the OM data which can help to determine link stability. Of interest is the number of errors detected. There are several types of errors that occur. For each type, a total is calculated. These totals are then used to calculate the link error rate. It is quite normal to have some errors. The error rate will be slightly higher for more heavily-used links.

Note: If the error rate remains greater than 0.01 percent, action should be taken. On a system that has been up and running normally, the error rate should not fluctuate greatly. However, during installation or configuration changes you may experience a higher error rate for several reasons:

- The ACCESS RS-232 cable is too long (for example, greater than 50 feet).
- The application processor cannot cope with link traffic. This is probably the case if the majority of received errors are “Naks” (No Acknowledge).
- Application traffic needs to be reduced. This is probably the case if the majority of errors are on the receiving (Meridian Mail) side.

The MMVERIFY command should always be run first. If it reports that the ACCESS link is not operational, then the APVERIFY command will only confirm this.

APVERIFY should be run after MMVERIFY to confirm that the ACCESS software is running on the applications processor. In Meridian Mail release 8 this is necessary because the software on the Meridian Mail side sends poll packets.

For example, Meridian Mail cannot detect a situation in which the link cable is unplugged while the link is idle and no applications are running. In this case, the link would still show up as being operational. However, the APVERIFY command would detect the link inactivity.

Figure F-2 shows the output for the MMVERIFY command when the system is operating normally.

Figure F-2
MMVERIFY output screen example

```

Meridian Mail Console
--- Meridian ACCESS Diagnostics ---
Information for Link #1
TC last started 13/09/95 09:54:00   TKM last started 13/09/95 09:53:46
Active Sessions=0  AODC Pending=12
ACCESS port=3 baud rate=9600

TC Crashes=0   Link Outages=4

PKT COUNTS      Data    Poll    Ack      Nak    Sync    Term
Sent -          47998    127     46673    0      1722    0
Received -       46552    117     48115    3       4       0

PKT ERRORS      Format  Checksum Sequence  Error Percentage  Timeouts
Received -           0         0         0           0.00           1727

ACCESS link #1 is operational on Meridian Mail

Diagnostic Command: MMverify
  
```

The following are descriptions of the fields appearing on this screen.

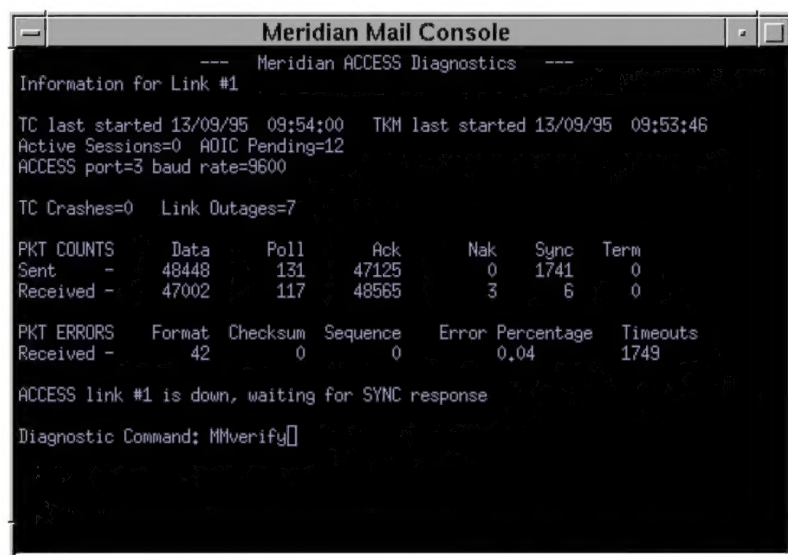
- Data** the total number of data packets
- Poll** the number of sanity poll packets (sent only when the link is idle)
- Ack** the number of acknowledgment packets
- Nak** the number of negative acknowledgment packets (zero indicates a clear link)
- Synch** the number of synchronization request packets
- Term** the number of shutdown link request packets
- Format** the number of packets received in the wrong format
- Checksum** the number of packets received containing checksum errors
- Sequence** the number of packets received out of sequence

Error percentage the link receive error rate, calculated by dividing the total number of packets received by the number of packet transmission errors

Figure F-3 shows an example of MMVERIFY output when Meridian Mail is attempting to synchronize with the UNIX side, which is not responding. It will continually attempt to synchronize with the UNIX processor until the UNIX link handler responds.

If the link handler is running, the synchronization process takes only a couple of seconds. If it is not running, or if the UNIX processor is not running, this condition will continue to persist.

Figure F-3
MMVERIFY output screen example



```
Meridian Mail Console
--- Meridian ACCESS Diagnostics ---
Information for Link #1
TC last started 13/09/95 09:54:00   TKM last started 13/09/95 09:53:46
Active Sessions=0  AIOC Pending=12
ACCESS port=3 baud rate=9600

TC Crashes=0  Link Outages=7

PKT COUNTS      Data    Poll    Ack    Nak    Sync    Term
Sent -          48448    131    47125    0    1741    0
Received -      47002    117    48565    3     6     0

PKT ERRORS      Format  Checksum  Sequence  Error Percentage  Timeouts
Received -      42      0         0         0.04             1749

ACCESS link #1 is down, waiting for SYNC response
Diagnostic Command: MMverify[]
```

If you repeat the MMVERIFY command while this condition exists, you will notice that the number of synchronized (Sync) packets sent continues to increase.

APVERIFY

This command performs the necessary checks and displays a report on the status of ACCESS software running on the applications processor. Even if MMVERIFY reports that the link is operational, you should run APVERIFY as there are certain conditions under which the link may not operate, that MMVERIFY is unable to detect (see the previous section for an example).

When APVERIFY is running, it monitors the link and reports if any application traffic was detected. If the link appears operational but no link traffic is detected within 30 seconds, the link handler on the applications processor is not functioning correctly.

Figure F-4 shows the output for the APVERIFY command when the system is operating normally and one or more applications are active.

Figure F-4
APVERIFY output screen



```
Meridian Mail Console
--- Meridian ACCESS Diagnostics ---

PKT ERRORS   Format  Checksum  Sequence  Error Percentage  Timeouts
Received -    0        0         0         0.00             1727

ACCESS link #1 is operational on Meridian Mail

Diagnostic Command: APVERIFY

ACCESS link is operational.

Traffic test may take up to 30 seconds. Please standby.

ACCESS link is operational and link traffic is present.

Diagnostic Command: MMverify
```

Running APVERIFY when MMVERIFY indicates that the link is not operational simply confirms this, as shown in **Figure F-5**.

Figure F-5
APVERIFY output screen (link not operational)



OMRESET

This command is used to reset (to zero) the numbers displayed by the MMVERIFY command.

Diagnosing ACCESS configuration problems

If results indicate that there may be a configuration problem on Meridian Mail, it is useful to know the actual configuration requirements of ACCESS on Meridian Mail. The following sections discuss configuration parameters which can be checked.

Enabling ACCESS

To check if ACCESS is enabled on your Meridian Mail system, select the General System Administration option from the Meridian Mail main menu. From the next menu displayed, select General System Options. "Meridian ACCESS" will be listed under the Available Features portion of the screen.

ACCESS link cable

The ACCESS link cable should be connected to the data port that is configured as MMLINK in Meridian Mail.

Viewing hardware database settings

To view hardware database settings, select the Hardware Administration option from the Meridian Mail Main Menu. From the next menu displayed, select the Data Port Configuration option. This screen displays a list of configured system data ports only, one of which should be of device type “MMLINK”. To view the port setting, select the item in the list and press the <View> softkey.

The data port that is configured for ACCESS must have the following settings:

- Device Type must be set to “MMLink”.
- Baud Rate must be set to “9600” for Meridian Mail systems on Release 8 or above.
- Data Port Location must be specified.